Support for the amendment to claim 1 is found on p. 9, lines 13-18 of the specification. Support for new claim 4 is found on p. 11, lines 1-2 of the specification.

The Examiner has rejected claims 1-3 under 35 U.S.C. § 112, second paragraph, for indefiniteness. The Examiner asserts that the phrase "cards" in claim 1 is unclear, and has assumed that the phrase refers to "IC cards" for the purpose of examination. Claim 1 has been amended to recite "IC cards."

The Examiner also asserts that the phrase "sticking a laminate sheet member onto adhesive layer exposed as a result of the stripping of the release sheet" in claim 3 is unclear. The Examiner also asserts that it is unclear in claim 3 how the hardened adhesive can be used to stick the mount onto an article. However, the hardened adhesive is not used for this purpose. Claim 3 corresponds to the embodiment of the present invention illustrated in Fig. 5.

As shown in Fig. 5, release sheets 21 and 23 are respectively fed from sheet member supply rolls 16 and 18 through a pair of guide rolls 24 and 26. Subsequently, the distance between the release sheets 21 and 23 is regulated to produce constant spacing by the sheet spacing regulator 33. Mount substrate 12, located between release sheets 12 and 23, is coated on both surfaces with adhesive coatings 28 and 30, and release sheets 21 and 23 are applied to adhesive coatings 28 and 30, respectively. The mount substrate 12 is then passed through first ultraviolet irradiator 42 and second ultraviolet irradiator 46.

As a result, the adhesives 28 and 30 are hardened and reaction heat is removed. The release sheets 21 and 23, which are stuck on both surface sides of the mount substrate 12, are then peeled by means of a pair of stripping guide rolls 51 and 53. The peeled release sheets 21 and 23 are then respectively wound around a pair of take-up rolls 50 and 52, exposing adhesive surface layers.

After the release sheets 21 and 23 are peeled off, the laminate sheets 58 and 60 are fed to a gap between a pair of pressure binding rolls 62 and 64 from a pair of laminate sheet member supply rolls 54 and 56. As a result, laminate sheets 58 and 60 are stuck to the mount substrate 12 by virtue of the adherence of the adhesives 28 and 30. It is in this aspect of the invention set forth in claim 3, that "sticking the mount substrate with the adhesive surface layer exposed as a result of the stripping of the release sheet onto an article" occurs. Consequently, claim 3 is believed to be clear as written and the rejection of claims 1-3 under 35 U.S.C. § 112, second paragraph, is believed to have been overcome.

The Examiner has rejected claim 1 under 35 U.S.C. § 102(a) for anticipation by Japanese patent document 11,221,986 to Tsuda et al. (hereinafter "Tsuda"). The Examiner asserts that Tsuda discloses a process for forming an IC card, which includes feeding an IC chip and an antenna on a central resin sheet between a pair of sheet substrates on both sides of the resin sheet, inserting an adhesive between the sheet substrates, pressing the substrates together to regulate the distance between the sheet substrates, and allowing the adhesive to cure.

According to Fig. 2 of Tsuda a resin, which is chosen from a heat-curing type, a hot-melt type or ultraviolet-ray-curable type resin is adhered to both sides of resin sheet 6, on which components including IC chip 3 are mounted, simultaneously or one side at a time, by means of the offset coating machines 8 and 9. An IC card having a flat and smooth surface is then manufactured by sticking together substrates 1 and 2 with heat presses 10 and 11. Consequently, the distance between substrates 1 and 2 (equivalent to the sheet members of the present invention) is a certain fixed spacing with the heat presses 10 and 11. Tsuda teaches adhering resin to a substrate with mounted ICs, followed by sticking a sheet to the mount substrate. Claim 1, as amended, defines an invention different from the teachings of Tsuda in that it recites feeding the adhesive onto the surface of the sheet members, followed by sticking

the sheet members to the mount substrate. In the prior art represented by Tsuda, wiring of components such as the ICs is cut by the shear force of resin flow. In the process of claim 1 of the present invention, because of the difference in the procedure of applying the resin, this effect is not seen. Tsuda does not teach the procedure of applying the resin set forth in claim 1 in the present application.

Neither does Tsuda suggest the procedure of applying the resin recited in claim 1 of the present invention. Tsuda teaches adhering adhesive resin to a resin sheet exhibiting irregularities due to the presence of an IC chip and other components. Tsuda does not address a method of compensating for these irregularities without large amounts of resin. In the process of claim 1 of the present invention, the surface of the sheet members is smooth and flat, so that the adhesive in a flow state can be supplied at a constant rate and with sufficient accuracy. Tsuda therefore suggests no reason why the application of adhesive to the sheet members offers any advantage to applying the resin to a sheet exhibiting irregularities, and therefore does not suggest the procedure of applying the resin set forth in claim 1 in the present application. For these reasons, the rejection of claim 1 for anticipation by Tsuda is believed to have been overcome.

Moreover, as set forth in new claim 4 and as shown in Figs. 1, 2 and 5, narrowing gradually the distance of the sheet members on which the adhesive is fed enables the adhesive to be fully filled in the gap between the sheet members and the mount substrate. This procedure produces a card without irregularities with a minimum of resin. Tsuda does not teach this method. Tsuda does not suggest this procedure for bonding the sheet members to the substrate or a need for it. Tsuda teaches only performing a simultaneous heat press. For these reasons, new claim 4 is neither anticipated by, nor obvious in view of, Tsuda.

The Examiner has rejected claims 2 and 3 under 35 U.S.C. § 103(a) for purported obviousness over Tsuda in view of U.S. Patent No. 5,841,350 to Appalucci et al. (hereinafter "Appalucci"). The Examiner notes that Tsuda does not disclose a sheet substrate that contains a release sheet allowing the IC card to be mounted on an article when the release sheet is stripped from the IC card. The Examiner asserts that Appalucci discloses an IC card (a resonant tag circuit) with an adhesive layer on one side, covered by a release sheet, allowing the IC card to be mounted on an article or an article's package by removal of the release sheet. The Examiner concludes that it would have been obvious to one skilled in the art to provide a release sheet as described by Appalucci to one of the sheet substrates used in the Tsuda process.

Appalucci shows, in Fig. 5, a release sheet 70 stuck on one side of the resonance tag circuit 10 (corresponding to the mount substrate of the present invention) through an adhesive layer 68 so that the release sheet can be peeled from the mount substrate 10. Appalucci discloses only that the resonance tag circuit (mount substrate) 10 is stuck on an article by peeling this exfoliation sheet 70. Appalucci does not disclose any additional details of the method for manufacturing such a construction. Specifically, Appalucci does not teach stripping the release sheet from the equivalent of the mount substrate after the hardening of the adhesive; claim 3, which sets forth this procedure, is not obvious in the absence of this teaching. Neither Tsuda nor Appalucci teaches feeding an adhesive in fluid condition on the surface of the sheet members. Neither Tsuda nor Appalucci teaches or suggests regulating a distance between a pair of sheet members into a constant spacing and hardening an adhesive by interposing a mount substrate between the surfaces of the sheet members on which the adhesive are fed. Both of these procedures are required in the process of claim 1, from which claims 2 and 3 depend. For these reasons, the rejection of claims 2 and 3 for obviousness over Tsuda in view of Appalucci is believed to have been overcome.

In view of the above amendments and remarks, it is believed that the claims are in condition for allowance. Reconsideration of the rejections is requested. Allowance of claims 1-4 is respectfully requested.

Respectfully submitted,

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MARKED-UP VERSION OF CHANGES MADE

IN THE SPECIFICATION:

The paragraph beginning at page 10, line 24 has been amended as follows:

In this embodiment, the sheet spacing regulator 33 comprises three pairs of regulation rolls, each pair consisting of regulation rolls 34, 36 disposed right and left with a gap, arranged so that the gaps are gradually regulated into the constant spacing. Although three pairs of regulation rolls are employed in this embodiment, the sheet spacing regulator 33 can naturally [consists] consist of a pair of regulation rolls, two pairs of regulation rolls, or more pairs of regulation rolls. Further, although pairs of regulation rolls 34, 36 disposed right and left are employed in this embodiment, as shown in Fig. 2, the sheet spacing regulator 33 can instead consist of a pair of regulation plates 38, 40 whose gap is gradually regulated into the constant spacing.

The paragraph beginning at page 12, line 13 has been amended as follows:

In this embodiment, as shown in Fig. 4, on4e of the pair of sheet members 20, 22 (sheet member 20 in Fig. 4) can be composed of a release sheet. In this instance, after the card is formed, an adhesive layer can be exposed by stripping the release sheet from the produced IC cards, so that the IC cards can be stuck to, for example, a surface of a corrugated cardboard box through the exposed adhesive layer as IC labels. Thus, the IC cards can be utilized in the information management for a physical distribution system and the like.

The paragraph beginning at page 15, line 7 has been amended as follows:

In this embodiment, because the adhesive 28, 30 must be hardened through the release sheets 21, 23, the release sheets 21, 23 are preferably selected from among films of transparent resins permeable for ultraviolet, such as polyethylene terephthalate and polycarbonate. Although the thickness of the release sheet is not particularly limited, from the viewpoint of strength and dimensional stability, it is preferred that the release sheet have a thickness of 20 to 150 μm.

The paragraph beginning at page 16, line 23 has been amended as follows:

In this embodiment as well, in the same manner as in the first embodiment, a release sheet can be used as one of the laminate sheets 58, 60, or either of the release sheets 21, 23 can be left unstripped without performing lamination at one side. In such an instance, the same IC cards as in Fig. 4 can be produced[,] which can be stuck to, for example, a surface of a corrugated cardboard box as IC labels. Thus, the IC cards can be utilized in [the] information management for a physical distribution system and the like.

The paragraph beginning at page 17, line 8 has been amended as follows:

The [above describes] above-described embodiments of the present invention, [which] however, in no way limit the scope of the present invention. For example, although the above embodiments relate to a vertically arranged system, the present invention can also be applied by a horizontally arranged system. Further, although the same adhesive resin was employed in the adhesive 28, 30 in the above embodiments, different types of adhesive resins can be applied therein. Still further, the cards are not limited to IC cards, and the present

invention can be applied for card-shaped products based on mount substrates with uneven surfaces.

IN THE CLAIMS:

Claim 1 has been amended as follows:

1. (Once Amended) A process for producing IC cards, comprising the steps of:

continuously feeding a mount substrate and simultaneously feeding a pair of sheet members on both surface sides of the mount substrate in such a manner that the mount substrate is interposed between the pair of sheet members;

feeding an adhesive in fluid condition [between each of] on the [surfaces] surface of the [mount substrate and the sheet member opposite thereto] sheet members; and

regulating a distance between the pair of sheet members into a constant spacing and hardening the adhesive by interposing the mount substrate between the surfaces of the sheet members on which the adhesive is fed.